

Steppe Ancestry

In [archaeogenetics](#), the term **Steppe Ancestry** is the name given to a distinct ancestral component that represents descent closely related to the [Yamnaya culture](#) of the [Pontic-Caspian steppe](#), occupied by people who shared a nomadic lifestyle, pastoral economy and barrow burial rituals (*kurgans*).^[1] This ancestry is often referred to as **Yamnaya Ancestry**, **Yamnaya-Related Ancestry**, **Western Steppe Herders**, **Western Steppe Pastoralists** or **Steppe-Related Ancestry**.^{[2][3]}

Yamnaya pastoralists contributed Y chromosome R1a and R1b haplogroups to continental Europe almost entirely replacing the previously wide-spread G2a haplogroup.^[4] This Yamnaya expansion led to the rise of the [Corded Ware culture](#), whose members harboured about 75% Steppe ancestry, and a decline of [Early European Farmers](#) (EEFs) from the European gene pool, and significantly changed Europe's cultural and genetic landscape until modern times.^[3]

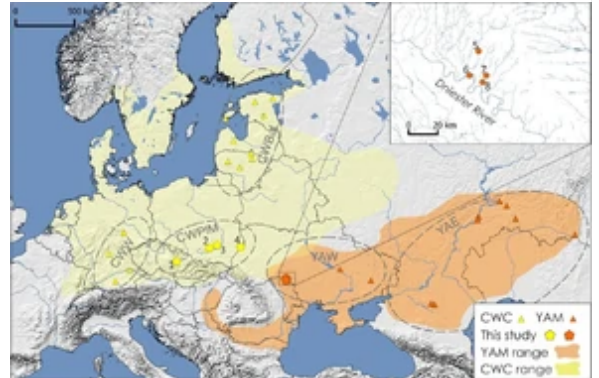
Steppe Ancestry is considered to be descended from [Eastern Hunter-Gatherers](#) (EHGs) who received some admixture from [Caucasian Hunter-Gatherers](#) (CHGs) during the [Neolithic](#). The [Y-DNA](#) was mostly types of [R1a](#) and [R1b](#), which are EHG lineages, suggesting that CHG admixture among the Steppe herders came through EHG males mixing with CHG females. Similarly, in linguistics the idea emerged that the Indo-European languages descended from [Ural-Altaic speakers](#) and were formed under a [Northwest Caucasian](#) substrate during the expansion of the [Khvalynsk](#) culture to the south.^{[5][6][7][8]}


The modern population of Europe can largely be modeled as a mixture of steppe-related Yamaya herders, Early European Farmers (EEF) and [Western Hunter-Gatherers](#) (WHG). In Europe, Steppe Ancestry peaks among [Tatars](#) (ca. 83%), [Gagauz](#) (ca. 83%), [Chuvashs](#) (ca. 79%), [Pomors](#) (ca. 79%), [Udmurts](#) (ca. 75%) and [Bashkirs](#) (ca. 75%), while in South Asia, it peaks among [Pamiris](#) (ca. 46%).

Steppe_EMBA ancestry

Steppe_EMBA is very difficult to trace today. This type of ancestry refers to Steppe Ancestry during the [Yamnaya](#) expansion and is often referred to as "Steppe Early and Middle Bronze Age" (**Steppe_EMBA**). In the 3rd mill. BC Steppe_EMBA ancestry was not yet widespread in Central Asia.^[9] Typical sites: Yamnaya, Afanasievo, Chemurchek, Okunevo outliers, Lake Baikal, Mongolia LBA and Shirengizou.^[3] Common Y-DNA lineage is R1b,^[9] specifically the R-L23 (R-Z2103) subclade has been found to be prevalent in ancient DNA associated with the Yamna culture.^[10]

R-L23 (Z2105/Z2103; a.k.a. R1b1a1a2a) has been reported among the peoples of the [Idel-Ural](#) region:



Extent of the Corded Ware culture (CWC) region and the Yamnaya horizon (YAM) are marked in yellow and orange. (source: [Nature](#) )



[Forensic facial reconstruction](#) of a male from the Yamnaya culture, Boldyrevo I, kurgan 1, grave 1.

Z2103/Z2105, downstreams of L23^[11]
21 out of 58 (36.2%) of Burzyan Bashkirs
11 out of 52 (21.2%) of Udmurts
4 out of 50 (8%) of Komi
4 out of 59 (6.8%) of Mordvins
2 out of 53 (3.8%) of Besermayan
1 out of 43 (2.3%) of Chuvash

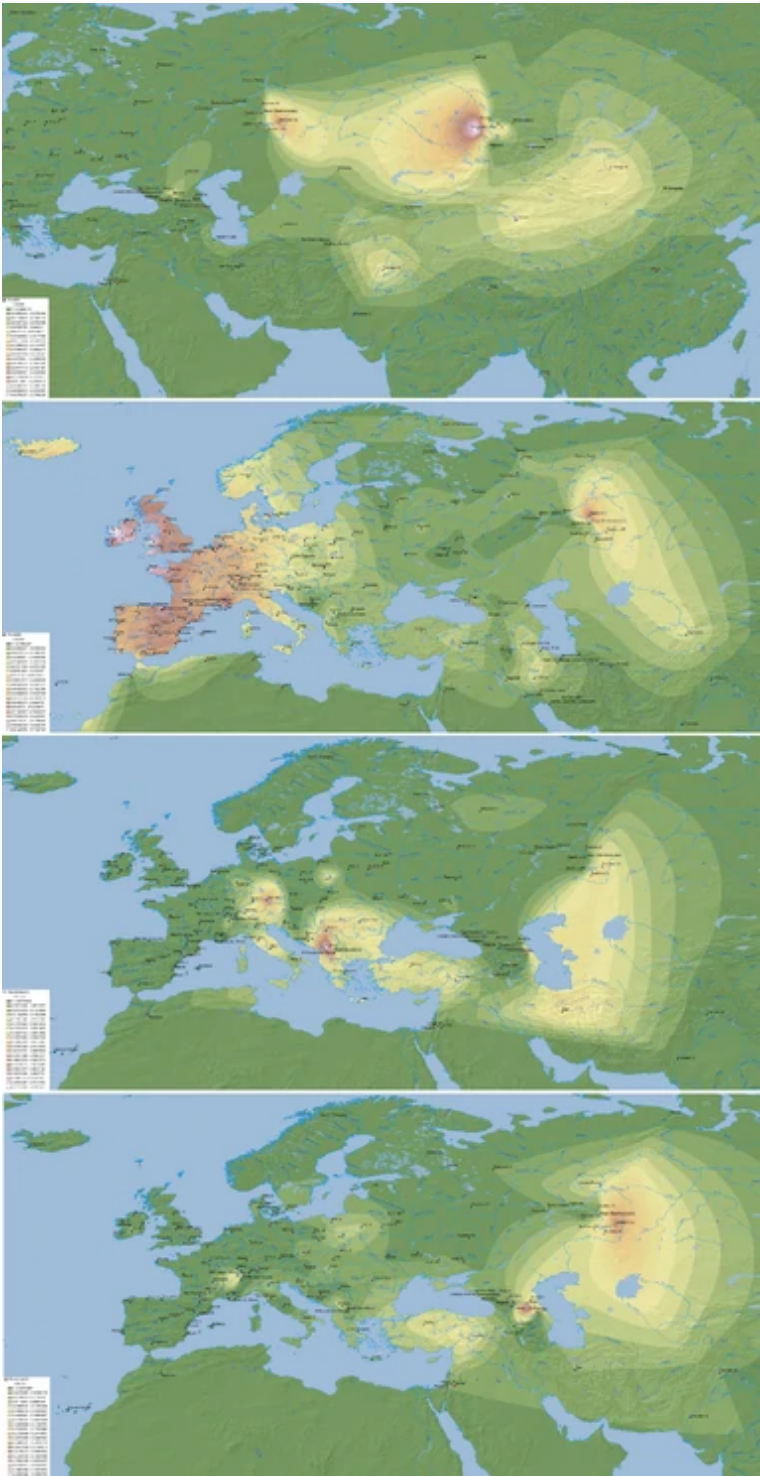
R1b frequencies in the Caucasus: *possible Z2103/Z2105 downstreams*

R1b-M269 and M73 in the Caucasus^[12]
19 out of 28 (67.9%) of Bagvalals
17 out of 43 (39.5%) of Tabasarans
15 out of 73 (20.6%) of Kumyks
14 out of 76 (18.4%) of Kara Nogais
15 out of 87 (17.2%) of Kuban Nogais
5 out of 31 (16.1%) of Lezgins
8 out of 57 (14.0%) of Armenians
18 out of 135 (13.3%) of Balkar Alans
7 out of 69 (10.2%) of Karachay Alans
12 out of 154 (7.8%) of Adyghes
3 out of 49 (6.1%) of Andis
6 out of 153 (3.9%) of N+S Ossetians
6 out of 162 (3.7%) of Abkhazians
5 out of 140 (3.6%) of Kabardins
3 out of 88 (3.4%) of Abazins
2 out of 67 (3.0%) of Dargins
1 out of 42 (2.4%) of Avars
2 out of 126 (1.6%) of Circassians

The distibution of these R1b-richer peoples of the Caucasus is a near carbon copy of the map of the [Maykop culture](#).



Approx. distribution of subclade **Z2103/Z2105** in modern populations (mainly Turkic)



This genetic pattern confirms the linguistic approach by several authors who assumed that *"Protosanskrit was the language of a ruling class composed of **Turkic-speaking riders** of the southern Russian steppes and **priests of Caucasian origin**"* (V. Pisani: 1974, p.14).^[13] The same view is shared by the German linguist K. H. Schmidt (1980, p.94).^[14]

R1b-M73 (**map 1**) R1b-M269 (**map 2**) R1b-M269 (xL23) (**map 3**) R1b-Z2103 (**map 4**)

Steppe_MLBA ancestry

This type of ancestry refers to Steppe Ancestry during the **Andronovo** period and is often referred to as "Steppe Middle and Late Bronze Age" (**Steppe_MLBA**). Most sampled Asian populations after 2000 BC show mainly Steppe_MLBA signals. Typical sites: Potapovka, Sintashta, Srubnaya, Andronovo.^[3] Common Y-DNA lineage is R1a, specifically the R-Z93 subclade.^[9]



Steppe_MLBA-like Srubnaya ancestry (today)

Highest Steppe_MLBA frequencies: **Kipchakic**, **Oghuzic**, **Oghuric**, **Tribal North & Chuds**, **Udmurt**

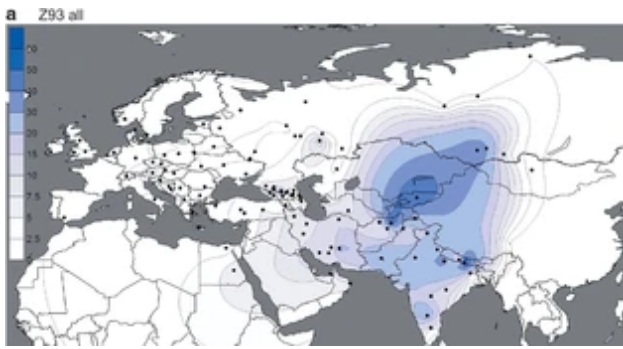
Tatar_Mish.	Tatar_Lip.	Gagauz	Tatar_Kaz.	Chuvash	Pomor	Bashkir	Udmurt
~ 83%	~ 83%	~ 83%	~ 79%	~ 79%	~ 79%	~ 75%	~ 75%

Note: see [here](#) for all frequencies.

Through the Sintashta culture, Andronovo culture and Srubnaya culture, Steppe MLBA was carried into Central Asia and South Asia along with Turkic languages, leaving a long-lasting cultural and genetic legacy. The current defeat of the Indo-Iranian theory lead to a serious change of mindset in modern academia (see: [Andronovo_culture#New_Genetic_Studies_.26_Steppe_MLBA_ancestry](#)).

Scytho-Turkic haplogroup R1a Z93. Spatial frequency distributions of Z93 affiliated haplogroups. Each map was generated using the frequencies from Supplementary Table 4 among 14 461 individuals, distributed across 119 population samples (references listed in Supplementary Table 4).





R1a-Z93, from the last large-scale study [Underhill et al. 2015](#)

References

Forensic facial reconstruction of a male

from the Srubnaya culture, Luzanovsky grave, Samara region.

1. ↑ Juras, A., Chyleński, M., Ehler, E. et al. [Mitochondrial genomes reveal an east to west cline of steppe ancestry in Corded Ware populations](#). *Sci Rep* **8**, 11603 (2018). <https://doi.org/10.1038/s41598-018-29914-5>
2. ↑ Jeong, Choongwon (November 27, 2018). "Bronze Age population dynamics and the rise of dairy pastoralism on the eastern Eurasian steppe". *Proceedings of the National Academy of Sciences of the United States of America*. National Academy of Sciences. **115** (48): 966–976. doi:10.1073/pnas.1813608115. PMC 6275519. PMID 30397125.
3. ↑ Jeong, Choongwon (April 29, 2019). "The genetic history of admixture across inner Eurasia languages in Europe". *Nature Ecology and Evolution*. Nature Research. **3** (6): 966–976. doi:10.1038/s41559-019-0878-2. PMC 6542712. PMID 31036896 // "We collectively refer to as "Western Steppe Herders (WSH)": the earlier populations associated with the Yamnaya and Afanasievo cultures (often called "steppe Early and Middle Bronze Age"; "steppe_EMBA") and the later ones associated with many cultures such as Potapovka, Sintashta, Srubnaya and Andronovo to name a few (often called "steppe Middle and Late Bronze Age"; "steppe_MLBA")."
4. ↑ Linderholm, Anna (14 April, 2020). "Corded Ware cultural complexity uncovered using genomic and isotopic analysis from south-eastern Poland". *Scientific Reports*. **10**, 6885 <https://doi.org/10.1038/s41598-020-63138-w>
5. ↑ Anthony, David (Spring–Summer 2019a). "Archaeology, Genetics, and Language in the Steppes: A Comment on Bomhard". *Journal of Indo-European Studies*. **47** (1–2). Retrieved January 9, 2020.
6. ↑ Kortlandt, Frederik, "THE SPREAD OF THE INDO-EUROPEANS" *Journal of Indo-European Studies*, Volume 18, 1990, p.131 // "[...] the linguistic evidence from our family does not lead us beyond Gimbutas' secondary homeland and that the *Khvalynsk culture* on the middle Volga and the *Maykop culture* in the northern Caucasus cannot be identified with the Indo-Europeans. Any proposal which goes beyond the Sredny Stog culture must start from the possible affinities of Indo-European with other language families. It is usually recognized that the best candidate in this respect is the Uralic language family, while further connections with the Altaic languages and perhaps even Dravidian are possible... What we do have to take into account is the typological similarity of Proto-Indo-European to the North-West Caucasian (i.e. Adyg) languages. If this similarity can be attributed to areal factors, we may think of Indo-European as a branch of *Uralo-Altaic* which was transformed under the influence of a Caucasian substratum. It now appears that this view is actually supported by the archaeological evidence. If it is correct, we may locate the earliest (Uralo-Altaic) ancestors of the speakers of Proto-Indo-European north of the Caspian Sea in the seventh millennium."
7. ↑ Damgaard, Peter de Barros; et al. (June 29, 2018). "The first horse herders and the impact of early Bronze Age steppe expansions into Asia". *Science*. American Association for the Advancement of Science. **360** (6396). doi:10.1126/science.aar7711. PMC 6748862. PMID 29743352 // "Ancient DNA findings suggest extensive population contact between the Caucasus and the steppe during the Copper Age (~5000 to 3000 BCE) (1, 2, 42). Particularly, the first identified presence of Caucasian genomic ancestry in steppe populations is through the *Khvalynsk burials* (2, 47) and that of **steppe ancestry** in the Caucasus is through Armenian Copper Age individuals (42). These admixture processes likely gave rise to the ancestry that later became typical of the Yamnaya pastoralists (7), whose IE language may have evolved under the influence of a Caucasian language, possibly from the *Maykop culture* (50, 56). This scenario is consistent with both the Copper Age steppe (4) and the Caucasian models for the origin of the Proto-Anatolian language (57)."
8. ↑ Kortlandt, Frederik, "THE INDO-URALIC VERB", Leiden University 2001 (+academia) // "While Indo-European looks like the development of a Uralic system, the latter looks like having developed from an Altaic system." // "INDO-URALIC AND ALTAIC"
9. ↑ Narasimhan, Vagheesh M. (September 6, 2019). "The formation of human populations in South and Central Asia". *Science*. American Association for the Advancement of Science. **365** (6457): eaat7487. bioRxiv 292581. doi:10.1126/science.aat7487. PMC 6822619. PMID 31488661 // "Importantly, in the 3rd millennium BCE we do

not find any individuals with ancestry derived from Yamnaya-related Steppe pastoralists in Turan. Thus, **Steppe_EMBA** ancestry was not yet widespread across the region."

10. ↑ Haak, Wolfgang, (2015). "Massive migration from the steppe was a source for Indo-European languages in Europe" . *Nature*. **522** (7555): 207–211. doi:10.1038/nature14317 . ISSN 1476-4687 . PMC 5048219 . PMID 25731166 .
11. ↑ Трофимова Натал'я Вадимовна (Feb. 2015), "Изменчивость Митохондриальной ДНК и Y-Хромосомы в Популяциях Волго-Уральского Региона" Archived 2017-04-02 at the [Wayback Machine](#) ("Mitochondrial DNA variation and the Y-chromosome in the population of the Volga-Ural Region"). *Автореферат*. диссертации на соискание ученой степени кандидата биологических наук. Уфа – 2015.
12. ↑ Yunusbayev, B. et al. (2012). "The Caucasus as an asymmetric semipermeable barrier to ancient human migrations" (PDF). *Mol. Biol. Evol.* **29** (1): 359–365. doi:10.1093/molbev/msr221 . PMID 21917723 . (R1b frequencies were taken from [Supplementary material](#))
13. ↑ PISANI, V. 1974: "*Indogermanisch und Europa*". München. Cited in: Alexander Häusler: "[Nomaden, Indogermanen, Invasion. Zur Entstehung eines Mythos](#)" . Halle 2002 (Orientwissenschaftliche Hefte 5; Mitteilungen des SFB „Differenz und Integration“ 3).
14. ↑ SCHMIDT, K. H. 1980: "Zur Typologie des Vorindogermanischen". In: P. Ramat (ed.): *Linguistic Reconstruction and Indo-European Syntax*, 91–111. Amsterdam. Cited in: Alexander Häusler: "[Nomaden, Indogermanen, Invasion. Zur Entstehung eines Mythos](#)" . Halle 2002 (Orientwissenschaftliche Hefte 5; Mitteilungen des SFB „Differenz und Integration“ 3).

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